



# ICE CREAM IN A BAG

Grade Level: Kinder - 7th grade

## Exploring Chemistry, Matter & Culinary Art

Objective: To observe the physical & chemical changes that occur to ingredients used in making ice cream in a bag in terms of state of matter, temperature, and weight.

### Materials

- 4 oz of cream
- 1/4 tsp of vanilla
- 4 tsp of sugar
- 2 cups of ice
- 1/2 cup of salt
- Quart size zip-lock bag
- Gallon size zip-lock bag

### Procedure

1. Place the 4 oz of creamer into the small zip-lock bag
2. Add the 1/4 tsp of vanilla and the 4tsp of sugar to the small zip-lock bag and zip it shut
3. Add 1 cup of ice into the large bag and cover the ice with a small handful of salt
4. Place the small bag into the larger bag.
5. Add more ice and some more salt into the larger bag
6. Zip the larger bag shut and hold the opposite sides of the bag and shake like you're steering a car for 8 minutes
7. Open the larger bag and take out the smaller bag and it should be full of ice cream.

## The Science of ICE CREAM

When you added salt to the ice, the **CHEMISTRY** between the two forced the ice to melt. Before the ice could melth though, it needed to borrow heat from surrounding objects. This is called an **ENDOTHERMIC** process. Since your ingredients are not as cold as the ice, the ice borrowed heat from your ingredients and made them colder. When your ingredients got colder and they froze and turned into ice cream.